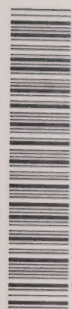


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The Equity and Revenue Effects in Ontario of Personal Income Tax Reform: 1972-1975




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Staff Paper

Ministry of Treasury, Economics and
Intergovernmental Affairs
Taxation and Fiscal Policy Branch





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Ontario Tax Studies 13

**The Equity and Revenue Effects
in Ontario
of Personal Income Tax Reform:
1972-1975**

Ministry of Treasury, Economics and
Intergovernmental Affairs
Taxation and Fiscal Policy Branch

Ontario Proposals For Tax Reform In Canada

- | | |
|-----------------------------|--|
| I Hon. Charles MacNaughton | Ontario Proposals for Tax Reform in Canada |
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1. Analysis of the Federal Tax Reform Proposals
2. Effects of Ontario's Personal Income Tax Proposals
3. Technical Study on Tax Reform and Small Business
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9. The Dynamic Impact of Indexing the Personal Income Tax
10. Cost of the Federal Guaranteed Income Proposal
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12. Major Growth Characteristics of the Personal Income Tax in Ontario: 1972-1974
13. The Equity and Revenue Effects in Ontario of Personal Income Tax Reform: 1972-1975

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Preface

Beginning January 1, 1972, the long-debated reform of the Canadian personal income tax system went into effect. During the period leading up to the introduction of the reform legislation, the Government of Ontario made major contributions to the reform process. Through its analyses of the revenue and incidence impact of the federal proposals, and presentation of alternative proposals to redistribute the personal tax burden, Ontario had a positive impact on the final package of tax reforms.

Since the enactment of the tax reform legislation, the federal government has introduced further major changes to the personal income tax. In effect, tax reform has turned out to be an ongoing process. The Government of Ontario has continued to analyze the taxation of personal income in Ontario. This study, which is number 13 in the series of Treasury staff studies, examines how personal income tax reform has worked in Ontario. Actual tax data for the first four years of tax reform, 1972-1975, have been processed by means of a sophisticated computer simulation model to derive the results contained in this paper. The analysis focuses on the equity characteristics and revenue-generating capacities of the pre-reform, pure-reform (as legislated in 1971) and post-reform tax systems.

This study was prepared in the Taxation and Fiscal Policy Branch of the Ontario Treasury. The research team was headed by Harry Newton, assisted by Tom Sweeting, Don Black, Conrad Gibbs and Nalini Karna.

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April 1977

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Chapter 1: The Evolution of Income Tax Reform in Canada

Background to Reform

Throughout the 1960's, the government sector in Canada experienced rapid growth. Concern was widely expressed about the implications of this development for economic stability and growth. In particular, a great deal of attention was focused on the effects of reductions in personal purchasing power through the tax system. At the national level, the Royal Commission on Taxation (the Carter Commission), was commissioned in 1962 to enquire into and report upon the incidence and effects of taxation.¹ At the Provincial level, the Ontario Committee on Taxation, commissioned in 1963, reviewed the taxation and revenue system of the Province, the municipalities and school boards, in conjunction with their expenditures.²

Because of its yield, flexibility and widespread impact, the personal income tax was accorded the greatest attention and study. The Carter Commission addressed itself primarily to the concept of equity, and in 1966 recommended sweeping changes to the income tax base. The Commission felt it was essential that all increases in economic power should be included in the tax base. This involved certain basic changes in the income tax:

- family income would be the basic tax unit;
- there would be two rate schedules, one for individuals and one for families. Marginal rates on high incomes would be limited to 50 per cent;
- personal exemptions would be replaced by a zero tax rate on the first amounts of income received;
- exemptions for dependants would be replaced by tax credits;
- all government transfer payments, all gains from the dispositions of capital assets and all gifts would be included in the tax base; and,
- the tax burden of the personal and corporate income taxes would be integrated so that taxes paid on dividend income would reflect shareholders' ability-to-pay.

The federal government carefully studied the recommendations of the Carter Commission and in 1969 published in a white paper its own proposals for reform.³ Although they were advanced as "the best practical proposals to attain our objective in present circumstances"⁴, these proposals were also intended for discussion and review by the public and by provincial governments.

The white paper was quick to reject one key premise of the Carter Commission—that the family would be the basic tax unit. The white paper proposed that the individual would remain the basic tax unit, and that there would continue to be only one rate

¹ *Report of the Royal Commission on Taxation*, (Ottawa: Queen's Printer, 1966).

² *Report of The Ontario Committee on Taxation*, (Toronto: Queen's Printer, 1967).

³ Hon. E. J. Benson, *Proposals for Tax Reform*, (Ottawa: Queen's Printer, 1969).

⁴ Hon. E. J. Benson, *op. cit.*, p. 5.

schedule. On the other hand, the white paper agreed that the top marginal rate would be only 50 per cent. The tax credit system proposed by Carter was rejected. Instead, exemptions were to be retained and, in fact, increased.

The white paper did, however, incorporate some important elements of the Carter Commission recommendations. A deduction would be allowed for employee expenses. Capital gains would be added to the tax base and taxed at full progressive rates. As well, unemployment insurance benefits, scholarships, research grants and training allowances would be included in income. Corporate and personal income taxes would be integrated for the treatment of dividend income.

The Ontario Committee on Taxation was not able to respond directly to the recommendations of the Carter Commission, since it reported less than a year after the Carter Commission. However, the Province was extremely concerned about the effects of tax reform. Under the terms of the Tax Collection Agreement, Ontario tax is levied on the base determined for purposes of the federal income tax. In order to receive the efficiency and simplicity inherent in a single income tax administration, Ontario must abide by the federal tax structure. Consequently, the equity of the Ontario tax, and to some extent its revenue yield, depend upon federal decisions as to how the income tax should be structured. As a result, the Government of Ontario reviewed the proposals of the white paper in considerable detail, and published its own proposals for reform as further input to the reform process.⁵

Ontario rejected increased exemptions, favouring the approach of eliminating taxes on low income and providing tax credits to offset the provincial-municipal tax burden on low-income individuals. Ontario also proposed a special tax credit for working mothers. Addressing the rate structure, Ontario proposed that:

- tax rates be reduced to offset revenue increases from corporate tax reform; and,
- the top marginal rate be 65 per cent, to prevent delivering unwarranted tax relief to high-income individuals.

Ontario supported the proposal for the taxation of capital gains, but separate from income and at a 25 per cent rate. The Province felt that the integration of dividend and personal incomes was not appropriate. Instead, it preferred the retention of the dividend tax credit in the form of a three rate structure. In addition, Ontario went beyond the federal white paper and proposed three reforms of its own:

- reduced taxes on overtime or income from a second job;
- greater coverage of the financial transactions between divorced and separated partners; and,
- development of a tax credit to encourage savings out of income.

Revenue Gains from Reform

In analyzing the effects of the federal white paper proposals, Ontario was particularly concerned about the revenue yield of the new tax system, which it estimated to be considerably higher than that documented by the federal government.⁶ Ontario argued that such revenue gains from reform would jeopardize its true purpose.

⁵Hon. Charles MacNaughton, *Ontario Proposals for Tax Reform in Canada*, (Toronto: Department of Treasury and Economics, 1970).

⁶Ontario Tax Studies 1, *Ontario analysis of the federal tax reform proposals*, (Toronto: Department of Treasury and Economics, 1970).

According to federal estimates, the income tax structure proposed in the federal white paper would not generate any significant increases in income tax revenues. The provinces, led by Ontario, argued that the white paper proposals would in fact yield considerable tax increases. Ontario presented detailed documentation to demonstrate that tax reform would generate over \$400 million in personal income tax increases in the first year plus almost \$1 billion in corporate tax increases at maturity.⁷ As a result, the federal Minister of Finance, on June 11, 1970, made a public commitment to zero revenue growth from personal income tax reform. To fulfil this promise, he modified the proposed rate schedule to include a staged reduction in the bottom marginal rate. At maturity this reduction saved Canadian taxpayers \$750 million that they otherwise would have paid had the white paper proposals been implemented.

The subsequent analysis in this paper assumes this staged reduction to be part of the pure-reform package.

Public discussion on the white paper proposals, in which Ontario participated vigorously, continued for another year. Finally, the federal government, after having digested the many recommendations, introduced on June 18, 1971 what it viewed as the appropriate tax reform policy.

1971 Tax Reform Legislation

Although tax reform officially took effect January 1, 1972, the federal government actually introduced two measures applicable in 1971.⁸ These measures were (a) an amendment of the basic rate schedule to exempt from personal income tax the first \$500 of taxable income, and (b) removal of the Guaranteed Income Supplement from the tax base. The former measure applied only in 1971, while the latter was permanent. As such, it marked the beginning of the implementation process of reform.

Under the tax reform package, exemptions were retained as basic features of the tax system, although some of their values were changed.⁹ *Personal exemptions* were increased to \$1,500 from \$1,000 for single persons, and to \$2,850 from \$2,000 for married couples, if the spouse had no income. The exemptions for dependent children remained unchanged, at \$300 and \$550 for children under 16 and over 16 respectively, but the tax treatment of dependants' incomes was altered. The special exemption for elderly taxpayers was increased to \$650 from \$500, and the qualifying age lowered to 65 years from 70 years. Similarly, the exemption for disabled persons was increased to \$650 from \$500.

Capital gains, except gains on principal residences, were made taxable, although not fully as was recommended by the Carter Commission and the white paper. Only one-half of capital gains were included in the taxpayer's income, to be taxed at progressive rates. Similarly, one-half of capital losses could be deducted against one-half of capital gains; also, up to \$1,000 of capital losses could be deducted against other income.

The 20 per cent *dividend tax credit* was replaced by a more complex measure, aimed at providing larger benefits to lower income investors. First, dividends were grossed up by one-third to become "taxable dividends". This latter amount was then included in income. Second, a tax credit of 80 per cent of the increment was applied against basic federal tax.

⁷*Ibid.*

⁸It should be noted that these two measures appeared as tax reform proposals in the federal white paper in 1969.

⁹A complete summary of the changes effected by tax reform is presented in Appendix A.

Unemployment insurance benefits were made taxable and contributions deductible. In addition, under the unemployment insurance reform legislation which became effective in 1972, mandatory coverage was extended to all employed persons. Thus, employees in those occupations which historically offered secure employment—government employees, nurses, teachers, and all other salaried employees earning more than \$7,800 per annum—were phased into the program.

Any portion of a public medical care plan (such as OHIP) which was paid for by an employer on behalf of his employee, became a *taxable allowance* of the employee. In addition, the value to employees of an automobile provided by the employer for personal use was considered a taxable benefit.

As part of tax reform, the method of calculating Provincial tax was altered significantly. Formerly, Ontario tax was calculated on taxable income. With reform, Ontario tax became “a tax on tax”—with Ontario tax a percentage of federal tax. The *rate schedule* was redesigned and the number of steps required to calculate tax payable was cut in half. The Social Development Tax and Old Age Security Tax were implicitly accounted for in the new tax schedule, and the temporary surtax was finally abolished. The marginal tax rates ranged from a low of 17 per cent on the first \$500 of taxable income to a high of 47 per cent on taxable income over \$60,000. The lowest marginal rate would be further reduced to 15 per cent in 1973, 12 per cent in 1974, 9 per cent in 1975, and 6 per cent in subsequent years as part of tax reform.

Changes in the Tax System in the Post-Reform Era (1972-75)

With the passing of the tax reform legislation of 1971, the reform process in Canada had by no means ended. The tax system underwent additional changes during the period following the introduction of reform. Some of these changes, undertaken by the federal government, were directly related to tax reform and others were designed as short-run stabilization policy measures. In addition, there was, beginning in 1974, the provision for the automatic indexation of exemption levels and income tax brackets—a measure designed to eliminate the income tax revenue gains attributable purely to inflation. At the provincial level, various tax credit schemes were implemented as well as provisions to directly reduce taxes for some taxpayers. This section provides a description of the federal and Ontario changes to the tax system which occurred in the period 1972 through 1975.

Changes Related to Tax Reform

Before the first year of tax reform ended, the federal government implemented new tax measures as refinements to its original plan. In the May 8, 1972 federal budget, two major changes were announced to apply from the beginning of 1972. First, the special exemption for taxfilers age 65 and over and for disabled taxfilers was raised from \$650 to \$1,000. Second, an education deduction was introduced. This deduction, which could be claimed either by a post-secondary student or by his parent or guardian, amounted to \$50 per month for each month in the year that the student attended a post-secondary educational institution.

Further adjustments to the income tax system occurred in the 1973 taxation year. The basic personal exemption was increased from \$1,500 to \$1,600, and the married or equivalent exemption was raised from \$1,350 to \$1,400.

The 1974 taxation year produced three further significant changes to the personal income tax system. First, as a measure to reduce the eroding effect of inflation on investment income, the first \$1,000 of interest income was made exempt from tax. Second, the Registered Home Ownership Savings Plan (RHOSP) was introduced to assist taxpayers who had never owned a home to save toward the purchase of one. Eligible taxpayers could deduct up to \$1,000 a year as contributions to a RHOSP, subject to a maximum lifetime contribution of \$10,000. Third, Family Allowances were raised to \$20 per child under age 18, and were made taxable for the person claiming the child as a dependant. Most significantly, the personal income tax was indexed against inflation; this important measure is discussed in detail later in this chapter.

In 1975, the federal government again introduced changes to the income tax system. First, as a means of encouraging investment in Canada, Ottawa expanded the interest income deduction to include taxable dividends from Canadian corporations. As a result, the first \$1,000 of combined interest and dividend income became exempt from tax. Second, action was taken to protect pensioners who had provided for their retirement years by saving through private pension plans. The first \$1,000 of income from such plans was exempted from tax. Third, provision was made for the transfer of certain eligible deductions from the lower income spouse to the higher income spouse. Specifically, those portions of the lower income spouse's age exemption, interest and dividend deduction, private pension income deduction, disability deduction and education deduction that were not needed to reduce his or her taxable income to zero were transferable to the higher income spouse.

Short-Run Stabilization Measures

Alongside these tax reform changes, a number of federal short-run stabilization measures were introduced during the period.¹⁰ For the 1972 taxation year, a federal tax reduction of 3 per cent of basic federal tax was in effect. In 1973, the reduction was raised to 5 per cent. This reduction carried a ceiling of \$500, and to ensure that it was large enough for every taxpayer to receive some benefit, it carried a minimum of \$100. In 1974, the 5 per cent tax reduction was maintained, but in order to increase its value to lower income taxpayers, the minimum reduction was raised from \$100 to \$150.

Further tax reductions were announced for the 1975 taxation year. The 5 per cent basic reduction was increased to 8 per cent and although the maximum reduction remained at \$500, the minimum was increased to \$200.

Indexation

Effective in 1974, the personal income tax system was indexed by the rate of inflation.¹¹ All exemptions and tax brackets were adjusted by an inflation factor, which was determined by comparing the average of the twelve monthly consumer price indices for the period ending September 1973 with the average of the corresponding indices for the period ending September 1972. The intent of the indexation measure was to eliminate the implicit revenue gains to government ("the fiscal dividend") resulting from the application of a progressive tax system to inflationary increases in income. Any taxpayer whose income increased in 1974 by the same percentage as the indexing factor paid approximately the

¹⁰Appendix B summarizes these measures.

¹¹For a thorough analysis of the impact of indexation, see Ontario Tax Studies 9, *The Dynamic Impact of Indexing the Personal Income Tax*, (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, 1974).

same percentage of his income in taxes in 1974 as he did in 1973. Those persons with lower growth in income paid a lesser proportion in taxes and those with higher growth paid a higher proportion. Indexation is now a permanent feature of the income tax system, with the indexation factor for each subsequent year being determined as above, using the appropriate indices for the twelve-month periods ending the preceding September and September one year earlier.¹²

The indexation factors as applied to the years 1974, 1975 and 1976 were 6.6 per cent, 10.1 per cent and 11.3 per cent respectively. Table 3-1 shows the values of the exemptions which resulted from the application of these factors.

Effect of Indexing Exemption Levels (dollars)		Table 1-1			
	Base Values	1974	1975	1976	
Basic Exemption	1,600	1,706	1,878	2,090	
Married Exemption	1,400	1,492	1,644	1,830	
Exemption for dependent children under 16	300	320	352	390	
Exemption for dependants 16 and over	550	586	646	720	
Age/Disability exemption	1,000	1,066	1,174	1,310	
Indexing Factor (%)	—	6.6	10.1	11.3	

Summary of Ontario Tax Measures Following Reforms

During the period following tax reform, Ontario also implemented measures which have improved the personal income tax system. These measures have largely taken the form of tax credits and direct tax reductions.

For the 1972 taxation year, Ontario implemented a 3 per cent tax cut. In 1972, the Province also instituted a property tax credit plan, which was further enriched in 1973 to include a retail sales tax credit and a pensioner tax credit. This plan was designed to improve the overall progressivity of the provincial-municipal tax burden in Ontario by linking property tax and sales tax burdens to ability-to-pay, as determined by the income tax. This was in keeping with the proposals made by Ontario during the tax reform process.¹³

In 1975, Ontario moved to parallel, in part, a measure undertaken by the federal government. The Province exempted from income tax any individual who paid no federal income tax by virtue of the minimum \$200 federal tax reduction.

Assumptions Underlying Analysis

The remaining chapters of this study analyze the impact of the reform of the income tax system for the years 1972, 1973, 1974 and 1975. Using the results obtained from a computer simulation model¹⁴, these chapters compare the federal and Ontario revenue

¹²The proper explanation of indexing states that for 1974 and subsequent taxation years, exemptions and brackets are allowed to increase from their base levels in proportion to any increase in the Consumer Price Index from its average level for the 12-month period ending September 30, 1972 to its average level for the 12-month period ending September 30 of the year prior to the taxation year in question.

¹³A detailed analysis of this tax credit system will be presented in a forthcoming staff study.

¹⁴See Appendix C for a brief discussion of this model.

yields and incidence patterns generated in Ontario under the following three tax systems: (a) *the pre-reform system* which was the system in effect in 1971, (b) *the pure-reform system* resulting from the tax reform legislation introduced on June 18, 1971 and (c) *the post-reform system* which encompasses the changes subsequent to the original reform. It is important to note that the results of the model reflect only those aspects of the three systems that are comparable. All of the short-term stabilization measures discussed above are considered to be discretionary and are not assumed to be implicit features of any of the three tax systems. For example, the pre-reform federal figures do not include the 1971 Temporary Surtax (1.5 per cent of basic tax in excess of \$200), or the 1.5 per cent tax reduction. In addition, the 1971 Ontario tax reduction (approximately 1.8 per cent) is not included. Similarly, the pure-reform and post-reform figures do not reflect any of the various tax reduction schemes, both federal and Provincial, that were applicable in 1972, 1973, 1974 and 1975, since they are unrelated either to tax reform or to the income redistribution intended by tax reform.

Chapter 2: The Impact of Pure-Reform

The tax reform legislation altered the two variables that determine the distribution of income taxes: the tax base and the tax rates. This chapter examines the main features of the changes in each and analyzes their impact.

Changes in the Tax Base

The most effective means of improving the equity of the income tax system is to bring all sources of income to tax in some form. Tax reform made a modest move toward this end. Several sources of income that were not subject to tax under the old system were added to the reformed tax base. In addition, the tax treatment of certain other income sources, already taxable under the old system, was changed. The three new income sources that constituted the largest additions to the tax base were capital gains, unemployment insurance benefits and redefined taxable allowances. At the same time, there were reductions in the tax base introduced by the legislation. The major reduction was the increase in personal exemptions.

Table 2-1 highlights the impact on the tax base of each of these changes. It is clear from the table that the reduction effect of the increase in personal exemptions far outweighed the effect of the major additions to the tax base.

Major Changes in the Tax Base
(\$ million)

Table 2-1

	1972	1973	1974	1975
Taxable Capital Gains	72	112	116	125
UIC Benefits	539	586	564	924
UIC Premiums	-111	-156	-270	-319
Increase in Taxable Allowances	162	186	203	218
Increase in Personal Exemptions	-2,663	-2,800	-2,914	-2,953

Source: Ontario Tax Studies 12, *Major Growth Characteristics of the Personal Income Tax in Ontario: 1972-1974*, (Toronto: Ministry of Treasury, Economics and Intergovernmental Affairs, 1976) and preliminary 1975 Ontario income tax data.

As of January 1, 1972, gains from the disposition of most forms of capital assets were subject to tax. Originally, capital gains were expected to have a considerable impact on the tax base. As Table 2-1 shows, however, capital gains have had only a small impact. In fact, since tax reform was enacted, taxable capital gains have constituted less than one-half of one per cent of the taxable income base. The failure of this new income source to generate the impact expected of it reflects federal overestimates of the number of capital dispositions and the resulting gains, economic uncertainties which have dampened

the appreciation of many forms of assets, and the subsequent introduction of tax measures (the interest deduction, for example) that favour the holding of primarily income-generating assets. In addition, government policies that inhibit speculative gains, and taxfilers' preferences to avert risk have retarded significantly the maturation of the capital gains system.

Beginning in 1972, all benefits received from the Unemployment Insurance Commission were subject to tax. This measure was accompanied by a complete reform of the unemployment insurance system. Benefit criteria were redefined, maximum allowable benefits were increased, and the base of employed taxfilers subject to mandatory coverage was expanded. At the same time, premiums paid to the Unemployment Insurance Commission were allowed as a tax deduction. Table 2-1 illustrates the impact on the tax base of this aspect of reform. This table shows that reported benefits remained relatively constant until 1975, when reported benefits increased sharply. The substantial increase in premiums in 1974 reflects the 40 per cent increase in the premium rate and the 6 per cent increase in the insurable earnings ceiling.

Tax reform expanded the base of employee benefits subject to tax. Beginning in 1972, the employer's share of an employee's government health insurance (OHIP) premiums, and the value of a company car for personal use were treated as income for tax purposes. As a result, taxable allowances in Ontario increased by slightly over 100 per cent of the amount that was taxable under the pre-reform system. Table 2-1 shows only the increase in taxable allowances resulting from the broadening of the definition of that income source. From 1972 to 1975, the expanded taxable allowance base grew at a slower rate than total income. The reasons for this modest increase are twofold. First, although the number of persons belonging to employer-assisted OHIP plans and the level of employer support both increased, OHIP premiums were unchanged over the period at \$11 per month for single individuals and \$22 per month for married couples and single persons with children. Second, despite the increase in the value to employees of company automobiles and in the number of persons receiving this form of benefit, it was not widely received and therefore was not a major component of taxable allowances.

The increase in personal exemptions brought about by pure-reform represented a major change in the tax base. As opposed to the other changes discussed in this chapter, it served to lower the taxable income base. As mentioned earlier, this move more than offset all of the additions to the tax base combined. This fact is highlighted further in the following tables. Table 2-2 shows that the tax reform legislation generated higher total income as reported for tax purposes than the pre-reform system, whereas Table 2-3 indicates that total taxable income was much lower under pure-reform than it was under the pre-reform system.

Total Income for Tax Purposes in Ontario (\$ million)		Table 2-2	
	Pre-Reform	Pure-Reform	
1972	27,048	27,938	
1973	31,452	32,492	
1974	37,327	38,353	
1975	41,924	43,415	

Source: Ontario Treasury simulations.

Taxable Income in Ontario
(\$ million)

Table 2-3

	Pre-Reform	Pure-Reform
1972	19,463	17,444
1973	23,290	21,149
1974	28,501	25,983
1975	32,838	30,546

Source: Ontario Treasury simulations.

Table 2-4 shows that pure-reform would have produced, on average, a taxable income per taxfiler approximately \$500 lower than under the pre-reform system for every year.

Average Taxable Income Per Taxfiler
(dollars)

Table 2-4

	Pre-Reform	Pure-Reform	Change
1972	4,664	4,178	-486
1973	5,227	4,755	-472
1974	6,098	5,568	-530
1975	6,906	6,425	-481

Source: Ontario Treasury simulations.

In order to put this reduction in taxable income into perspective, the difference of \$500 represented the major benefit in the reformed tax base that applied to the largest group of taxfilers: the \$500 increase in the basic personal exemption for taxfilers filing as single.

Changes in the Tax Rates

In addition to modifying the tax base, tax reform also involved significant changes to the rate structure. First, the Old Age Security Tax and Social Development Tax were buried into the rate structure and spread over all taxable income levels. This simplified the calculation of taxes and increased the overall progressivity of federal tax levied on personal income. Second, the marginal rates applicable to the highest taxable incomes were reduced, from levels approaching 80 per cent to something in the order of 60 per cent. The federal government deemed such a reduction to be justifiable in light of the tax base broadening resulting from the addition of capital gains, an income source confined primarily to the highest income earners. Finally, the new tax system aimed at producing revenue approximately equal to revenue under the pre-reform system. Since the impact of tax reform on the base was to reduce this base overall, an increase in tax rates was necessary. The rate structures under pre-reform and reform are shown in Table 2-5.

It is apparent from this table that the pure-reform rate schedule is higher than the pre-reform rate schedule. This table also shows that the pre-reform system contained a notch between \$6,000 and \$8,000 taxable income. This anomaly was eliminated in the pure-reform system which levied consistently graduating rates.

To illustrate the upward adjustment in the pure-reform rate schedule in an alternative fashion, a comparison of the pre-reform and pure-reform rate schedules is presented in

Pre-Reform Tax Schedule (1971)

Table 2-5

Taxable Income Bracket	Federal Tax		Total Tax	
	Tax at the beginning of the bracket	Tax rate on income in the bracket	Tax at the beginning of the bracket	Tax rate on income in the bracket
(\$)	(\$)	(%)	(\$)	(%)
0-500	0	4.0	0	4.0
500-1,000	20	15.5	20	20.0
1,000-2,000	98	17.5	120	22.0
2,000-3,000	273	19.0	340	24.0
3,000-4,000	462	19.7	580	25.0
4,000-6,000	659	21.8	830	28.0
6,000-8,000	1,096	18.7	1,390	26.0
8,000-10,000	1,470	21.6	1,910	30.0
10,000-12,000	1,902	25.2	2,510	35.0
12,000-15,000	2,406	28.8	3,210	40.0
15,000-25,000	3,270	32.4	4,410	45.0
25,000-40,000	6,510	36.0	8,910	50.0
40,000-60,000	11,910	39.6	16,410	55.0
60,000-90,000	19,830	43.2	27,410	60.0
90,000-125,000	32,790	46.8	45,410	65.0
125,000-225,000	49,170	50.4	68,160	70.0
225,000-400,000	99,570	54.0	138,160	75.0
400,000 and over	194,070	57.6	269,410	80.0

This schedule has been revised to incorporate the federal Old Age Security and Social Development taxes into the federal rate structure.

Total tax includes federal tax as described in the preceding paragraph plus Ontario income tax at 28 per cent of 'basic tax'.

Reformed Tax Schedule (1972)

Taxable Income Bracket	Federal Tax		Total Tax	
	Tax at the beginning of the bracket	Tax rate on income in the bracket	Tax at the beginning of the bracket	Tax rate on income in the bracket
(\$)	(\$)	(%)	(\$)	(%)
0-500	0	17	0	22.2
500-1,000	85	18	111	23.5
1,000-2,000	175	19	228	24.8
2,000-3,000	365	20	476	26.1
3,000-5,000	565	21	737	27.4
5,000-7,000	985	23	1,285	30.0
7,000-9,000	1,445	25	1,886	32.6
9,000-11,000	1,945	27	2,538	35.2
11,000-14,000	2,485	31	3,243	40.5
14,000-24,000	3,415	35	4,457	45.7
24,000-39,000	6,915	39	9,024	50.9
39,000-60,000	12,765	43	16,658	56.1
60,000 and over	21,795	47	28,442	61.3

Total tax includes federal tax plus Ontario income tax of 30.5 per cent of federal tax.

Table 2-6. This table indicates the tax impact on particular filers, incorporating assumptions concerning the impact of tax reform on their taxable incomes. It is clear that the rate structure increased for all filers, with the notable exception of the low-income filer who experienced a substantial reduction in taxable income, and the high-income filer.

Marginal Impact of the Canadian Income Tax System in 1972 Table 2-6

Pre-Reform System			Pure-Reform System		
Taxable Income	Federal Rate	Ontario Rate	Equivalent Taxable Income*	Federal Rate	Ontario Rate
(\$)	(%)	(%)	(\$)	(%)	(%)
<i>Filer who experienced no change in taxable income</i>					
2,001	18.2	4.8	2,001	20.0	6.1
5,001	21.8	6.2	5,001	23.0	7.0
10,001	25.2	9.8	10,001	27.0	8.2
15,001	32.4	12.6	15,001	35.0	10.7
25,001	36.0	14.0	25,001	39.0	11.9
50,001	39.6	15.4	50,001	43.0	13.1
100,001	46.8	19.2	100,001	47.0	14.3
<i>Filer whose taxable income was reduced by \$1,000</i>					
2,001	18.2	4.8	1,001	19.0	5.8
5,001	21.8	6.2	4,001	21.0	6.4
10,001	25.2	9.8	9,001	27.0	8.2
15,001	32.4	12.6	14,001	35.0	10.7
25,001	36.0	14.0	24,001	39.0	11.9
50,001	39.6	15.4	49,001	43.0	13.1
100,001	46.8	19.2	99,001	47.0	14.3
<i>Filer whose taxable income was increased by \$1,000</i>					
2,001	18.2	4.8	3,001	21.0	6.4
5,001	21.8	6.2	6,001	23.0	7.0
10,001	25.2	9.8	11,001	31.0	9.5
15,001	32.4	12.6	16,001	35.0	10.7
25,001	36.0	14.0	26,001	39.0	11.9
50,001	39.6	15.4	51,001	43.0	13.1
100,001	46.8	19.2	101,001	47.0	14.3

*Equivalent taxable income attempts to approximate the taxable income applicable under pure-reform for a given pre-reform taxable income.

Previous analysis in this chapter indicated that the changes to the tax base, reducing taxable income, amounted to \$500 for the average taxpayer. Table 2-7 shows that a filer experiencing this decline in taxable income under pure-reform would have faced a tax increase once his taxable income exceeded \$1,500.

Revenue Yield of Pure-Reform

It is apparent that tax reform worked in two opposite directions to generate the new revenue yield. While changes to the tax base were reducing the amount of income subject to tax, the new rate structure was levering tax payable upwards. These two effects were to yield a revenue impact comparable to that which would have existed under pre-reform.

Total Tax Payable by an Average Taxfiler
(dollars)

Table 2-7

Pre-Reform		Pure-Reform	
Taxable Income	Total Tax Payable	Equivalent* Taxable Income	Total Tax Payable
1,000	120	500	111
2,000	340	1,500	352
3,000	580	2,500	607
4,000	830	3,500	874
6,000	1,390	5,500	1,435
8,000	1,910	7,500	2,049
10,000	2,510	9,500	2,714
12,000	3,210	11,500	3,446
15,000	4,410	14,500	4,686
25,000	8,910	24,500	9,279
40,000	16,410	39,500	16,939
60,000	27,410	59,500	28,159
90,000	45,410	89,500	46,526
225,000	138,160	224,500	129,281

*Estimates indicate an average taxfiler faced a \$500 reduction in taxable income under pure-reform.

In terms of the tax implications of the changes to the tax base, Table 2-8 details the effect on revenues of the four major additions to the base.

**Tax Implications of the Major Pure-Reform
Alterations to the Base**
(\$ million)

Table 2-8

	Federal				Ontario			
	1972	1973	1974	1975	1972	1973	1974	1975
Capital Gains	21	33	39	33	7	10	11	10
UIC Benefits and Premiums	52	56	23	73	16	18	7	23
Increased Taxable Allowances	39	49	56	61	12	15	17	19
Increased Exemptions	-500	-538	-585	-624	-152	-164	-179	-190

Source: Ontario Treasury simulations.

It is apparent that, considered together, the four major moves had a depressing effect on overall revenues. Equity was most certainly increased by the addition of income sources not previously taxed. However, a significant portion of the new income sources in the tax base was reported by taxfilers with no tax payable. Approximately 10 per cent of total capital gains was reported by non-taxable filers. In addition, over 20 per cent of unemployment insurance benefits was reported by non-taxable filers, while deductions for UIC premiums were claimed by predominantly middle and upper income taxpayers. These results served only to dampen the revenue gains anticipated from the additions to the base. At the same time, the increases in personal exemptions which were available to all taxfilers completely outweighed the tax increases derived from the new income

sources. Although only 83 per cent of the increase in exemptions was used by taxable filers in 1972, this percentage rose to 87 per cent by 1975, indicating that this reform measure was increasing in importance over time as taxfilers' incomes grew.

Table 2-9 illustrates the final impact of pure-reform on the revenue yield of the personal income tax.

It is interesting to view these figures in light of Ontario's analysis of the tax reform proposals which suggested that (1) total revenue to the federal government would increase under reform, and (2) Ontario revenue would decrease. Despite the introduction of the staged reduction in the lowest marginal rate, Table 2-9 bears out the earlier Ontario analysis¹⁵. In fact, without this major concession by the federal government, 1975 federal revenues resulting from tax reform would have been some \$150 million greater in Ontario alone. Meanwhile, the income tax revenue losses experienced by Ontario grew every year since tax reform, reaching \$142 million in 1975.

Revenue Impact of Pure-Reform
(\$ million)

Table 2-9

	Federal		Ontario		Total	
	Pre-Reform	Pure-Reform	Pre-Reform	Pure-Reform	Pre-Reform	Pure-Reform
1972	3,743	3,836	1,163	1,173	4,906	5,009
1973	4,601	4,673	1,456	1,427	6,057	6,100
1974	5,801	5,823	1,879	1,779	7,680	7,602
1975	6,909	6,978	2,274	2,132	9,183	9,110

Source: Ontario Treasury simulations.

¹⁵Ontario Tax Studies 1, *op. cit.*

Chapter 3: The Impact of Post-Reform

Pure-reform was not the last word on income tax reform. In every year since the introduction of the basic reform package (or pure-reform), additional changes have been made in what has amounted to an ongoing reform exercise. Consequently, the actual tax impact over the period has differed substantially from that of pure-reform. This chapter reviews the effect of these further reforms on the income tax.

The first chapter of this study discussed the numerous changes in the personal income tax system that have occurred since the tax reform legislation was first implemented. With one exception—the taxation of Family Allowances—all of these post-reform measures have reduced the total tax payable for all taxfilers affected. Apart from the indexing of the tax brackets, the post-reform measures all impacted on taxable income. Tables 3-1 and 3-2 present this impact on total taxable income and average taxable income, respectively.

Total Taxable Income
(\$ million)

Table 3-1

	Post-Reform	Change from Pure-Reform
1972	17,301	– 143
1973	20,565	– 584
1974	24,530	– 1,453
1975	27,742	– 2,804

Source: Ontario Treasury simulations.

Average Taxable Income
(dollars)

Table 3-2

	Post-Reform	Change from Pure-Reform
1972	4,144	– 34
1973	4,624	– 131
1974	5,257	– 311
1975	5,834	– 591

Source: Ontario Treasury simulations.

The structure of the tax rates was not directly affected by any of the post-reform measures. The indexing of the tax brackets combined with the lower average taxable incomes, however, did cause many taxfilers to move to lower tax brackets in 1974 and 1975.

As Table 3-3 clearly shows, the post-reform measures generated revenue losses in Ontario for both levels of government. In 1972, federal revenue was \$30 million lower than under the pure-reform system. This loss grew to \$913 million by 1975. At the Provincial level, revenues in 1972 were \$9 million lower than under the pure-reform system. By 1975, this loss had increased to \$280 million.

Revenue Impact of Post-Reform Measures

Table 3-3

(\$ million)

	Federal		Ontario	
	Post-Reform	Change from Pure-Reform	Post-Reform	Change from Pure-Reform
1972	3,806	- 30	1,164	- 9
1973	4,543	- 130	1,387	- 40
1974	5,412	- 411	1,653	- 126
1975	6,065	- 913	1,852	- 280

Source: Ontario Treasury simulations.

Whereas Table 3-3 highlights the overall impact of the post-reform measures on revenues, Tables 3-4 and 3-5 illustrate the differential impact of the individual measures on federal and Ontario revenues, respectively.

The two post-reform measures introduced in 1972 had very little effect on the federal revenue yield, reducing it by less than one per cent. The increase in the age/disability exemption contributed slightly more to the revenue loss than did the education deduction. However, for all eligible filers, only one-half of the increase in the age/disability exemption was applied to taxable income, whereas almost 90 per cent of the education

Federal Revenue Losses from Post-Reform Measures

Table 3-4

(\$ million)

	1972	1973	1974	1975
Pure-reform revenue	3,836	4,673	5,823	6,978
Change in Age/Disability exemption	- 17	- 20	- 20	- 19
Education deduction	- 13	- 15	- 17	- 18
Change in personal exemptions		- 95	- 99	- 100
Interest deduction			- 167	- 187
RHOSP deduction			- 23	- 34
Taxable Family Allowances			+ 138	+ 152
Indexing			- 211	- 592
Pension deduction				- 38
Deductions transferred from spouse				- 16
Dividend deduction				- 9
Loss from "bracket-shifting"			- 12	- 52
Cost of post-reform measures	- 30	- 130	- 411	- 913
Post-reform revenue	3,806	4,543	5,412	6,065

Source: Ontario Treasury simulations.

Ontario Revenue Losses from Post-Reform Measures (\$ million)

Table 3-5

	1972	1973	1974	1975
Pure-reform revenue	1,173	1,427	1,779	2,132
Change in Age/Disability exemption	-5	-6	-6	-5
Education deduction	-4	-5	-5	-5
Change in personal exemptions		-29	-30	-30
Interest deduction			-51	-58
RHOSP deduction			-7	-10
Taxable Family Allowances			+42	+46
Indexing			-64	-182
Pension deduction				-11
Deductions transferred from spouse				-4
Dividend deduction				-3
Loss from "bracket-shifting"			-5	-18
Cost of post-reform measures	-9	-40	-126	-280
Post-reform revenue	1,164	1,387	1,653	1,852

Source: Ontario Treasury simulations.

deduction was used to reduce taxable income by those eligible to claim it. These results indicate two things: first, many of the aged or disabled filers had low incomes and were not able to use the full amount of the increase in the deduction and, second, the majority of the education deduction was claimed not by students, but by their parents who had higher incomes.

The only 1973 measure of significance—the increase in personal exemptions—produced a much greater revenue loss, almost three times as large as both 1972 measures combined. Furthermore, the 1973 measure was almost fully utilized, with 95 per cent of the increased exemptions being applied to taxable income. This can be attributed to the facts that all filers benefitted from the move, and that the change in taxable income per filer was small—\$100 to single filers and \$150 to married filers.

In 1974, the measures of the two prior years continued to produce the same level of revenue losses as they did in 1973. On the other hand, the 1974 measures, exclusive of indexing, produced in net a federal revenue loss of \$52 million. The RHOSP deduction resulted in a net federal revenue loss of \$25 million, with those filers who claimed this deduction applying the entire amount to their taxable incomes. The interest deduction produced a revenue loss of \$167 million to the federal government, although only 86 per cent of the total allowable deduction was applied to taxable income. The taxation of Family Allowances, the only post-reform measure with a positive effect on revenues, yielded \$138 million to Ottawa. Because of its sizeable impact and its important implications for the structure of the tax, indexing will be discussed in detail later in this chapter.

The measures of 1972 and 1973 continued to exhibit the same effect in 1975 as they did in the preceding year. The revenue impact of the measures of 1974, however, increased in 1975 in response to the growth in income and in the taxfiling population. The new 1975 measures combined to yield additional federal losses of \$63 million, with the pension

deduction contributing \$38 million, the deductions transferred from spouse \$16 million, and the expansion of the dividend deduction \$9 million.

The post-reform measures had very much the same impact on Ontario revenues as they had on federal revenues. As seen in Table 3-5, with the exception of indexing, the measures which had the greatest impact on Provincial revenues were the interest deduction, the change in personal exemptions and the taxation of Family Allowances. By 1975, the first two had combined to reduce Ontario's revenue by \$85 million while the latter produced a \$46 million gain.

Tables 3-4 and 3-5 indicate that the sum of the losses from the post-reform measures, when taken individually, did not add up to the total losses generated when all of the post-reform measures were applied at the same time. This is explained by the fact that when a taxpayer makes use of more than one of the measures (excluding Family Allowances), he may drop into a lower tax bracket as a result, thereby securing a "bracket-shifting" saving as well. The residual loss in tax revenue from bracket-shifting represents the difference between the revenue impact of each individual post-reform measure as compared to the revenue impact of all of the post-reform measures applied simultaneously. Federal losses attributable to the bracket-shifting effect were \$12 million in 1974 and \$52 million in 1975. Ontario revenues were affected as well, with losses of \$5 million in 1974 and \$18 million in 1975.

The Influence of Indexation on Revenues

The indexation of the tax system has had a greater effect on revenues than any other post-reform measure. As was seen in Tables 3-4 and 3-5, indexing had by 1975 accounted for greater federal and Ontario revenue losses than all of the other post-reform measures combined. Table 3-6 gives a detailed break-out of these revenue losses for the years 1974 and 1975.

Revenue Losses from Indexing Exemptions and Income Brackets (\$ million) Table 3-6

	1974		1975	
	Federal	Ontario	Federal	Ontario
1974 Indexing				
Personal Exemptions	111	34	114	35
Age Exemption	4	1	4	1
Children's Exemptions	14	4	10	3
Income Brackets	82	25	102	32
Total in 1974	211	64	230	71
1975 Indexing				
Personal Exemptions			182	56
Age Exemption			6	2
Children's Exemptions			26	8
Income Brackets			148	45
Total in 1975			362	111
Total	211	64	592	182

Source: Ontario Treasury simulations.

In 1974, the indexing of personal exemptions (basic exemption and married exemption) by 6.6 per cent cost Ottawa and Ontario \$111 million and \$34 million, respectively, and the indexing of income tax brackets another \$82 million and \$25 million. By contrast, the revenue losses from indexing the age exemption and children's exemptions were quite moderate, accounting for only 8 per cent of the total losses from indexation.

The system was indexed by an additional 10.1 per cent in 1975. The total revenue losses in that year, therefore, reflected the compounded effect of indexing for two years, 1974 and 1975. Table 3-6 provides a break-out of these revenue losses. The influence of the first phase of indexing (1974 changes) on 1975 revenues was almost identical to that of the year before, except with respect to the losses from indexing the brackets. The second phase of indexing, however, produced significant changes. Reflecting the application of a higher indexation factor, the second phase of indexing produced further revenue losses of \$362 million and \$111 million to the federal and Ontario governments, respectively—amounts which represented more than 60 per cent of the total losses from the two phases combined.¹⁶

¹⁶Ontario Tax Studies 9, *op. cit.*, pp. 29-30. This study, conducted using 1972 income data extrapolated to 1974 and 1975, estimated federal and Ontario revenue losses from indexing. Taking into account that a lower rate of inflation was assumed at that time, these original estimates were consistent with the actual losses experienced.

Chapter 4: The Equity Impact of Tax Reform

This chapter analyzes the incidence aspect of the pre-reform, pure-reform and post-reform tax systems. It examines the capacity of the latter two systems to redistribute more equitably the income tax burden of the taxfiling population.

Conventionally, there are different ways of looking at incidence. This study analyzes the incidence effects of tax reform from three perspectives:

- the number of taxable filers at the bottom end of the income scale;
- the proportion of total taxes paid by various income groups; and,
- the average tax paid by various income groups.

In order to determine whether the pure-reform and post-reform tax systems redistributed income taxes more equitably, it is necessary to establish a common base for comparing all three tax systems. In particular, it is necessary to determine a common income base and a common set of income classes that will permit examination of identical groups of taxpayers under the three tax systems. To this end, the actual income for tax purposes effective in each taxation year (the post-reform definition of income) has been selected. It is true that under the pre-reform system the income figure used to determine the income class of each taxpayer may contain certain income sources that were not subject to tax under that system, but the post-reform definition of income that has been used reflects more completely the actual income of the taxpayer.

Number of Taxable Filers

Table 4-1 presents the number of low-income federal and Ontario taxable filers.

Number of Taxable Filers with Income less than \$5,000						Table 4-1
(000)						
	Federal			Ontario		
	Pre	Pure	Post	Pre	Pure	Post
1972	1,287	1,053	1,004	1,014	1,054	1,004
1973	1,287	1,050	956	1,020	1,050	956
1974	1,198	998	779	964	998	778
1975	1,107	902	613	851	902	613

Source: Ontario Treasury simulations.

From Table 4-1, it is evident that under the pre-reform tax system, there were more federal taxpayers than Ontario taxpayers. This is explained by the fact that under the pre-reform tax system, some taxpayers with no Ontario tax payable had to pay federal Social Development (SDT) and Old Age Security (OAS) taxes. Under the pure-reform tax system, the number of federal taxpayers and Ontario taxpayers were virtually the same. This result applied to the post-reform system as well.

Table 4-1 shows a substantial drop in the number of federal taxpayers with income below \$5,000 as a result of tax reform. This is due to the change in the Social Development

and Old Age Security taxes, which under reform were incorporated into the new federal rate structure. On the other hand, the table presents a different picture for Ontario taxpayers. The increase in the number of Ontario taxpayers in low-income groups under pure-reform was, to a large extent, the result of taxation of UIC benefits received by low-income filers and of capital gains produced from the disposition of capital assets by low-income pensioners.

The post-reform changes in the tax system are reflected in the decrease in the number of both federal and Ontario low-income taxpayers. This is explained by the fact that the increase in exemptions and deductions benefitted a larger percentage of taxpayers than those that were affected by the widening of the tax base with the inclusion of new income sources.

Distribution of Tax

Table 4-2 displays the percentage distribution of federal tax, Ontario tax and total tax in each income class under the three tax systems. Once again, it is necessary to point out the need for comparable groups of taxfilers under all three tax systems. Accordingly, the income classes are defined using the post-reform definition of income which, for some taxfilers, includes non-taxable income sources under the pre-reform and pure-reform tax systems.

Pure-reform improved the progressivity of the federal income tax, mainly by eliminating the OAS and SDT premium taxes. In 1972, the first year of reform, taxpayers with incomes below \$10,000 paid a smaller percentage of federal tax and those with incomes above \$10,000 paid a greater percentage of federal tax. The post-reform changes further enhanced the progressivity of the federal income tax.

Tax reform affected the incidence of Ontario income tax quite differently. Pure-reform increased the percentage of total Ontario tax paid by taxpayers with incomes less than \$10,000, while decreasing the proportion paid by higher income taxpayers. The subsequent post-reform worked to redistribute the burden of Ontario's tax from those taxpayers with less than \$10,000 to those at the upper end of the income scale. But this positive impact was not enough to offset the regressive thrust of the original reform legislation. By 1975, the provincial income tax system still had not regained its pre-reform level of progressivity.

The differential impact of the pure-reform tax system on the federal as opposed to the Ontario distribution of income tax is almost entirely explained by the change in the SDT and OAS taxes. Incorporation of these two taxes into the federal rate structure enabled the federal government to get more from the higher income groups. On the other hand, since the reformed Ontario income tax was calculated as a fixed percentage of the new basic federal tax which includes the two special taxes, the Province was implicitly imposing a tax on low-income taxfilers that it did not impose under the pre-reform system.

On the combined basis of federal plus Ontario tax, the equity impact of pure-reform was almost neutral. Taxpayers below \$10,000 income ended up paying only a slightly smaller share than they would have paid had the pre-reform system been continued. The post-reform moves, by contrast, clearly shifted the total tax burden from the \$10,000 and under income classes onto those with incomes above \$10,000. As well, this redistributive thrust increased in every year so that, by 1975, filers under \$10,000 income paid 17.86 per cent of tax compared to 20.38 per cent under the pre-reform system.

Distribution of Total Tax

Table 4-2

Income Class	Federal			Ontario			Total		
	Pre	Pure	Post	Pre	Pure	Post	Pre	Pure	Post
(\$000)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1972									
Under									
5	7.09	6.89	6.67	5.65	6.88	6.66	6.76	6.89	6.67
5-10	33.55	32.20	32.20	29.52	32.15	32.15	32.61	32.18	32.18
10-15	26.97	27.29	27.39	27.18	27.28	27.38	27.03	27.29	27.39
15-20	10.95	11.29	11.33	12.04	11.30	11.34	11.21	11.29	11.33
20-25	5.86	6.01	6.00	6.74	6.03	6.04	6.07	6.02	6.01
25+	15.55	16.28	16.35	18.85	16.34	16.40	16.33	16.30	16.36
1973									
Under									
5	5.62	5.33	4.82	4.38	5.32	4.82	5.33	5.32	4.82
5-10	28.22	27.00	26.73	24.44	26.97	26.70	27.32	26.99	26.72
10-15	29.16	29.46	29.64	28.94	29.44	29.62	29.11	29.45	29.63
15-20	12.62	12.99	13.13	13.66	13.00	13.14	12.87	12.99	13.13
20-25	6.07	6.24	6.31	6.85	6.24	6.32	6.26	6.24	6.32
25+	18.27	18.95	19.33	21.70	18.99	19.37	19.09	18.96	19.34
1974									
Under									
5	4.25	3.73	2.75	3.23	3.72	2.74	4.01	3.73	2.75
5-10	22.19	21.12	20.44	18.82	21.09	20.41	21.38	21.11	20.43
10-15	28.15	28.51	28.99	27.41	28.50	28.97	27.98	28.51	28.98
15-20	16.12	16.52	16.86	17.01	16.52	16.85	16.34	16.52	16.86
20-25	7.71	7.93	8.05	8.47	7.93	8.05	7.89	7.93	8.05
25+	21.55	22.15	22.88	25.04	22.21	22.94	22.40	22.16	22.89
1975									
Under									
5	3.05	2.72	1.71	2.26	2.72	1.71	2.86	2.72	1.71
5-10	18.26	17.38	16.15	15.23	17.35	16.13	17.52	17.37	16.15
10-15	25.33	25.62	25.94	24.27	25.58	25.90	25.08	25.61	25.93
15-20	19.50	19.84	20.22	20.24	19.82	20.20	19.69	19.83	20.21
20-25	9.57	9.77	9.83	10.37	9.79	9.85	9.77	9.78	9.83
25+	24.25	24.65	26.12	27.60	24.70	26.18	25.08	24.66	26.14

Average Federal and Ontario Tax

Table 4-3 presents the average federal tax and average Ontario tax per taxfiler.

The impact of pure-reform on both federal and Ontario average tax reflects what would have been the distribution of federal and Ontario taxes under pure-reform. As in the case of tax distribution, the impact of pure-tax reform on average tax was clearly different at the two levels of government. For taxpayers with incomes up to \$10,000, average Ontario tax increased, whereas average federal tax decreased. On the other hand, in 1974 and 1975, average federal tax increased for taxpayers with incomes above \$10,000 while average Ontario tax decreased for the same income class. In 1972 and 1973, average Ontario tax decreased for taxfilers with incomes above \$15,000.

Average Federal and Ontario Tax

Table 4-3

Income Class	Federal			Ontario		
	Pre	Pure	Post	Pre	Pure	Post
(\$000)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
<i>1972</i>						
Under 5	139	137	127	34	42	39
5-10	919	891	857	247	272	262
10-15	1,740	1,778	1,717	537	543	525
15-20	2,778	2,893	2,794	935	885	855
20-25	4,092	4,242	4,089	1,440	1,300	1,253
25 +	10,264	10,856	10,487	3,807	3,329	3,216
<i>1973</i>						
Under 5	136	131	115	33	40	35
5-10	935	907	873	253	277	266
10-15	1,779	1,822	1,782	551	556	544
15-20	2,865	2,990	2,938	967	914	898
20-25	4,182	4,352	4,284	1,470	1,330	1,309
25 +	10,538	11,073	10,983	3,904	3,389	3,362
<i>1974</i>						
Under 5	139	122	84	34	37	26
5-10	945	900	809	256	275	247
10-15	1,798	1,823	1,722	558	556	526
15-20	2,829	2,903	2,753	952	886	840
20-25	4,061	4,184	3,947	1,423	1,278	1,206
25 +	10,431	10,733	10,301	3,864	3,287	3,155
<i>1975</i>						
Under 5	130	117	64	31	36	19
5-10	945	907	732	256	277	223
10-15	1,835	1,871	1,645	572	571	502
15-20	2,902	2,976	2,635	980	909	804
20-25	4,196	4,317	3,773	1,478	1,322	1,156
25 +	10,356	10,613	9,769	3,834	3,249	2,991

The post-reform tax changes brought about a general decline in both federal and Ontario average taxes. This is attributable to the post-reform increase in exemptions and deductions which applied to most taxpayers and caused a significant decline in taxable income at all levels of income. In some cases, the average tax reductions from post-reform exceeded average tax increases resulting from pure-reform. In fact, by 1974, all the increases in both the federal and the Ontario average tax figures under pure-reform were more than offset by the post-reform decrease in these averages.

At the very top end of the income scale, there was a perverse effect contradicting the equity goals of tax reform. For the small group of filers with very high incomes, tax reform worked to their advantage. As Ontario predicted in 1970, the "reduction of the top marginal rate to 50 per cent provides unwarranted tax reductions to many high-income

taxpayers".¹⁷ To illustrate, in 1975, the 5,000 taxpayers with the highest incomes in Ontario would have paid \$20 million less tax under pure-reform than under pre-reform. Post-reform further exacerbated this discrepancy with the top 5,000 taxpayers paying approximately \$35 million less tax than they would have paid under the pre-reform tax system.

In summary, the original reform exercise had only a marginal impact on the overall progressivity of the income tax. Progressivity improved over time for total tax, but not for Ontario tax. As a result of having to rely on the federal tax statute for its tax base, the Province found itself under pure-reform in the position of having to tax more low-income filers while at the same time reducing taxes on higher income filers. The post-reform moves reversed, to some extent, this regressive trend for Ontario tax but were not sufficient to restore to the provincial income tax its pre-1972 progressivity. However, the considerable improvements in the progressivity at the federal level more than made up for the regressive movement at the provincial level, leading to a more equitable distribution of the total income tax burden.

¹⁷ Ontario Tax Studies 1, *op. cit.*, p. 20.

Chapter 5: Impact of Tax Reform on Ontario Revenues

The Change in Federal-Provincial Tax Shares

One of the most critical results of the implementation of tax reform is the performance over the period of both federal revenues and Ontario revenues under the pure-reform and post-reform systems. As Table 5-1 shows, the impact of tax reform on tax revenues has been substantially different for the two levels of government.

Impact of Tax Reform on Federal and Ontario Revenues
(\$ million) Table 5-1

	Federal			Ontario		
	Pure-Reform	Post-Reform	Post-Reform Only	Pure-Reform	Post-Reform	Post-Reform Only
1972	93	63	-30	10	1	-9
1973	72	-58	-130	-29	-69	-40
1974	22	-389	-411	-100	-226	-126
1975	69	-844	-913	-142	-422	-280

Note: The "Post-Reform Only" column shows the net difference between the pure-reform and post-reform tax systems.

The original tax reform legislation enacted in 1971 resulted in modest revenue gains to the federal government, even after the staged reductions in the bottom marginal rate of tax. Subsequent post-reform changes implemented by the federal government, however, produced revenue losses which by 1973 had more than erased these original reform gains.

At the Provincial level, on the other hand, the original tax reform legislation yielded much different results. Pure-reform would have produced a small gain in the first year, and losses every year thereafter. These losses would have steadily increased in magnitude over time. The post-reform changes made by the federal government produced additional net revenue losses for Ontario, despite the revenue increases resulting from the taxation of Family Allowances.

One of the reasons for the Provincial revenue losses was the reduction in the tax base that resulted from tax reform. Though new sources of income were added to the tax base under reform (notably capital gains, unemployment insurance benefits and certain taxable allowances), these additions to taxable income were far outweighed by the increased exemptions and new deductions.

The second and most important reason for the revenue losses to the Province was the intrinsic deterioration in income tax sharing under tax reform. Under the pre-reform system, Ontario personal income tax represented 28 per cent of the combined federal plus

Provincial income tax. The federal government also levied the OAS and SDT taxes, which were ceilinged and non-shareable. But as incomes grew over time, these special federal income taxes did not grow except for those taxpayers below the \$6,000 ceiling. Consequently, under the pre-reform system, there was a built-in escalation over time in the provincial share of total income tax revenues.

Under tax reform, Ontario was accorded a constant rather than its former growing share of income tax revenues. Not only was the Provincial share fixed, but also, at 23.4 per cent of reformed basic federal tax, it was fixed considerably below the 28 per cent potential share under pre-reform.

This relative deterioration over time of Ontario's position in the income tax field can be illustrated in four ways:

- comparing Ontario's share of total income tax,
- comparing Ontario tax as a percentage of federal tax for various income groups,
- comparing average marginal rates of taxable filers, and
- illustrating the Ontario tax rate necessary to maintain the pre-reform revenue

under the pre-reform and the reformed tax systems. Tables 5-2 to 5-5 present these comparisons.

From the following analysis, and in light of the additional income tax changes introduced for 1976, it is obvious that the pre-reform and post-reform revenue yields will continue their divergent trends.

Ontario's Share of Total Tax
(per cent)

Table 5-2

	Under Pre-Reform System	Under Both Reformed Systems
1972	23.7	23.4
1973	24.0	23.4
1974	24.5	23.4
1975	24.8	23.4

Ontario Tax as a Percentage of Federal Tax

Table 5-3

Income Class	1972			1975		
	Pre	Pure	Post	Pre	Pure	Post
(\$000)	(%)	(%)	(%)	(%)	(%)	(%)
Under 5	24.38	30.51	30.51	24.11	30.49	30.49
5-10	26.93	30.52	30.52	24.11	30.49	30.49
10-15	30.83	30.55	30.55	31.17	30.50	30.50
15-20	33.65	30.59	30.59	33.75	30.53	30.51
20-25	35.18	30.64	30.64	35.23	30.62	30.62
25 +	37.09	30.66	30.67	37.01	30.61	30.61
Overall	31.07	30.58	30.58	32.91	30.55	30.54

Note: The rise in the Provincial tax rate above 30.5 per cent for higher income classes under both the pre-reform and post-reform tax systems is explained by the application of the federal foreign tax credit which reduced federal tax payable slightly.

Average Marginal Rate of Taxable Filers
(per cent)

Table 5-4

	Pre-Reform			Pure-Reform			Post-Reform		
	Federal	Ontario	Combined	Federal	Ontario	Combined	Federal	Ontario	Combined
1972	19.7	6.7	25.8	22.3	6.8	29.1	21.7	6.6	28.3
1973	20.2	7.0	26.6	22.7	6.9	29.6	22.7	6.9	29.6
1974	21.1	7.4	28.0	23.4	7.1	30.5	22.9	7.0	29.9
1975	21.7	7.8	29.0	24.1	7.4	31.5	22.9	7.0	29.9

Note: Under the pre-reform system, the federal and Ontario marginal rates cannot be added since there are more federal taxable filers than there are Ontario taxable filers. A small number of taxpayers with no Ontario tax payable are subject to federal Social Development and Old Age Security Taxes.

Ontario Personal Income Tax Rate* Necessary to Maintain Pre-Reform Revenue Yield

Table 5-5

(per cent)

	Under Pure-Reform System	Under Post-Reform System
1972	30.5	30.5
1973	31.0	32.0
1974	32.0	34.5**
1975	32.5	37.5***

*To the nearest half percentage point.

**33.5 per cent without indexation.

***34.0 per cent without indexation.

The Revenue Guarantee

When the original tax reform legislation was introduced in 1971, the provinces insisted that the federal government guarantee that provincial revenues would not decline as a result of tax reform. The federal government originally felt that the provinces would not lose any revenue. After federal-provincial discussions, the federal government altered its position slightly, declaring that provincial revenue losses were possible, but it argued that such losses would be minimal and non-recurring.

Subsequently yielding to provincial pressure, the federal government agreed to make up all provincial losses in the first three years of tax reform (1972-74). This *Revenue Guarantee*, as it became known, was subsequently extended through the 1976 taxation year.¹⁸ All of the pure-reform moves were covered by this guarantee. As well, it was obvious that many of the additional moves implemented by the federal government following the introduction of the tax reform legislation were also of a reform nature. The federal government included the post-reform moves in the Guarantee, with the notable exception of indexing.

Table 5-6 documents the value of the Revenue Guarantee to Ontario from 1972 to 1975. During the period, the federal government altered the means of calculating the Guarantee entitlement arbitrarily – a move which reduced payments to the provinces. Despite this fact, and the exclusion of indexing, the table illustrates the sizable impact that the reform process has had on Ontario's revenue.

¹⁸Further details of the Revenue Guarantee are provided in Appendix D.

Ontario's prediction in 1970 that provincial revenue losses would be substantial, permanent and growing has been borne out.

Revenue Guarantee Entitlements for Ontario
(\$ million)

Table 5-6

1972	43
1973	154
1974	135*
1975	195

*The drop in payments in 1974 reflects the alteration in the method of calculating payments for 1974 and 1975. Under the original calculation procedure, it is estimated Ontario would have received \$292 million and \$320 million in 1974 and 1975, respectively, from the Revenue Guarantee.

Conclusion

Personal income tax reform has been a continuous process in Canada ever since the original reform legislation was implemented on January 1, 1972. This study has analyzed the revenue and equity effects of this ongoing process to determine how tax reform actually worked in practice in Ontario. The significant findings are summarized below.

- The income tax changes introduced after 1972 (post-reform) have had a much larger impact than the original package of reforms.
- Indexing of the income tax system in 1974 has been the single most important tax change in terms of revenue yield and burden on taxpayers.
- The increases in personal exemptions introduced in 1973 and the expanded incentives for savings (\$1,000 interest deduction, RHOSP, RRSP, etc.) have generated substantial tax savings for taxpayers.
- Taxation of Family Allowances has been the only significant addition to the income tax base during the post-reform era.
- The base-broadening reforms introduced in 1972—capital gains, UIC, taxable allowances—were far outweighed by the base-narrowing effects of the increase in personal exemptions. As a result, the average taxpayer enjoyed a \$500 reduction in taxable income under the original package of reforms.
- The new federal rate schedule introduced in 1972 was significantly higher than the pre-reform schedule, and more than compensated for the revenue losses generated by the smaller tax base under pure-reform.
- Under the original reform package, the great bulk of taxpayers ended up paying slightly more taxes than before. Only those at the very bottom and the very top of the income scale enjoyed actual tax reductions as a result of the original reforms.
- Post-reform delivered tax reductions to all taxpayers, in many instances sufficient to reduce tax payable below the pre-reform level. In fact, for a number of filers, post-reform changes completely removed any tax liability.
- The income tax system has become more progressive as a result of the accumulated reforms, but most of this improvement has resulted from the post-reform changes. The original package of reforms created only a very modest improvement in overall equity and actually worsened the incidence of the Provincial tax share alone.
- The original tax reform legislation (even after the staged reduction in the bottom marginal rate of tax) actually enhanced the revenue yield to the federal government. These gains, however, were returned to taxpayers along with major additional tax savings via the post-reform changes.
- Tax reform has led to a large deterioration in provincial revenue yields. The original reform package incorporated an intrinsic loss in tax sharing to the provinces, reducing their share of revenue growth over time from 28 per cent to 23.4 per cent. The post-reform changes worked to further reduce provincial revenue yields.

Appendix A: Major Components of the Income Tax Structure

The following list itemizes the major components of the income tax structure and their taxation status under the pre-reform tax system and under the original tax reform legislation (June 1971).

Income Sources	Pre-Reform	Tax Reform Legislation
Earnings from employment	taxable	taxable
Commissions from employment	taxable	taxable
Taxable allowances	taxable	taxable (base expanded)
Adult training allowances	not taxable	taxable
Net research grants	not taxable	taxable
Scholarships and bursaries	not taxable	taxable (\$500 exemption)
Alimony received	taxable	taxable
Tips and gratuities	taxable	taxable
Commissions from self-employment	taxable	taxable
Net business income	taxable	taxable
Net professional income	taxable	taxable
Net farming income	taxable	taxable
Net fishing income	taxable	taxable
Net rental income	taxable	taxable
UIC benefits	not taxable	taxable
OAS benefits	taxable	taxable
Superannuation income	taxable	taxable
CPP benefits	taxable	taxable
Dividends (actual)	taxable	taxable (grossed up by one-third)
Interest	taxable	taxable
Capital gains	not taxable	taxable (one-half of net capital gains)
Deductions		
CPP contributions	deductible	deductible
UIC premiums	not deductible	deductible (program expanded to include all employees)
RPP contributions	maximum \$1,500	maximum \$2,500
RRSP contributions	(1) maximum \$2,500 if not also belonging to an RPP; otherwise, (2) maximum of \$1,500 less any contributions to an RPP	(1) maximum \$4,000 if not belonging to an RPP; otherwise, (2) maximum \$2,500 less any contributions to an RPP
Union dues	deductible	deductible
Tuition fees	deductible	deductible
Child care expenses	not deductible	deductible with limits
General employment expense	not deductible	3% of earnings—maximum \$150
Other allowable employment expenses	deductible	deductible
Carrying charges	deductible	deductible

Deductions (Continued)	Pre-Reform	Tax Reform Legislation
Moving expenses	not deductible	deductible
Alimony paid	deductible	deductible
Income averaging annuity premiums	not deductible	deductible
Standard deduction (in lieu of medical and charitable deduction)	\$100	\$100
Medical expenses	expenses in excess of 3% of net income	expenses in excess of 3% of net income (list expanded)
Charitable donations	maximum—10% of net income	maximum—20% of net income
Exemptions		
Basic personal	\$1,000	\$1,500
Married or equivalent	\$1,000 less \$1 for every \$1 that dependant's income exceeds \$250	\$1,350 less \$1 for every \$1 that dependant's income exceeds \$250
Age exemption	\$500 (age 70 and over)	\$650 (age 65 and over)
Dependants under age 16	\$300. If child's income exceeds \$950, excess is added to parent's tax (notch provision)	\$300 less \$1 for every \$2 that dependant's income exceeds \$1,000
Dependants age 16 and over	\$550 with same notch provision as above	\$550 less \$1 for every \$1 that dependant's income exceeds \$1,050
Disability	\$500	\$650
Tax Calculation		
Dividend tax credit	20% of dividends received	20% of grossed-up dividends
Taxable income	total income less deductions and exemptions	total income less deductions and exemptions
Basic tax	as per 1971 tax schedule according to taxable income—tax adjustments are added and the dividend tax credit is subtracted	as per post-reform tax schedule according to taxable income—tax adjustments are added and the dividend tax credit is subtracted
Federal abatement for provincial tax	28% of basic tax	none
General averaging	some relief for farmers and fishermen	applicable to all taxpayers
Other Federal Taxes		
Social Development tax	2% of taxable income in excess of \$1,000—maximum \$100	incorporated into post-reform tax schedule
Old Age Security tax	4% of taxable income—maximum \$240	incorporated into post-reform tax schedule
Temporary Surtax	1.5% of basic tax in excess of \$200 (3% from 1967 to 1970)	abolished
Ontario Tax		
Ontario tax payable	28% of basic tax (pre-reform definition)	30.5% of federal basic tax (reform definition)

Summary of the Major Post-Reform Changes

- 1972** Age and disability exemptions raised from \$650 to \$1,000.
Education deduction introduced (\$50 per month for each month that student is in attendance at post-secondary institution—deductible by student or by parent claiming student as dependant).
- 1973** Basic personal exemption raised from \$1,500 to \$1,600.
Married or equivalent exemption raised from \$1,350 to \$1,400.
- 1974** Family Allowances added to tax base.
First \$1,000 of interest income exempt from tax.
Registered Home Ownership Savings Plan introduced.
Indexation of the tax system.
- 1975** First \$1,000 of private pension income exempt from tax.
Interest deduction expanded to include taxable dividends from Canadian corporations.
Principal taxfiler could deduct from his/her income that portion of certain deductions of the spouse that the spouse did not require to reduce her/his taxable income to zero. These deductions include the age exemption, the interest and dividend deduction, the pension income deduction, disability deduction and education deduction.
Further indexation of the tax system.

Appendix B: Tax Changes Not Associated With Tax Reform

- 1971** Federal tax reduction of 1.5 per cent of (pre-reform) federal basic tax.
Ontario tax rate lowered to 27.5 per cent of federal basic tax (equivalent to a tax reduction of 1.8 per cent of Ontario tax payable).
- 1972** Federal tax reduction of 3 per cent of (reformed) federal basic tax.
Ontario tax reduction of 3 per cent of Ontario tax payable (equivalent to Ontario tax rate of 29.585 per cent)—effective for 1972 only.
- 1973** Federal tax reduction of 5 per cent of federal basic tax—minimum reduction of \$100 non-refundable—maximum of \$500.
- 1974** Federal tax reduction of 5 per cent of federal basic tax—minimum reduction of \$150 non-refundable—maximum of \$500.
- 1975** Federal tax reduction of 8 per cent of federal basic tax—minimum reduction of \$200 non-refundable—maximum of \$500.
Ontario tax reduction equal to all Ontario tax payable for taxpayers with taxable income of \$1,395 or less—maximum reduction \$61—no reduction for taxpayers with more than \$1,395 of taxable income.

Appendix C: The Personal Income Tax Simulation Model

In order to measure the impact of the federal income tax reform legislation on federal and Ontario income tax revenue, a computer simulation model has been developed to simulate three income tax systems—the pre-reform system (1971), the pure-reform system (as per the June 1971 legislation), and the post-reform system—for the 1972, 1973, 1974 and 1975 taxation years. The data files used as input to the model were, for each of these years, subsamples of the standard sample ("Green Book") of income tax returns prepared for Ontario by Revenue Canada, Taxation, under the terms of the Tax Collection Agreement.

Clearly, these data files contain much more information than is necessary to compute pre-reform income tax. For pre-reform simulation purposes, all data items that were either not taxable or not deductible or non-existent in 1971 are zeroed out. All items that were subject to different limits in 1971 (dividends, RPP and RRSP contributions, and charitable donations) are adjusted to the 1971 limits. In addition, using the federal government's estimate for Ontario, taxable allowances are deflated by 53.16 per cent to remove the effect under tax reform of including additional items, such as the value to employees of company cars and employers' contributions to government health insurance plans, in taxable allowances. All of the above steps permit the calculation of a very close approximation of pre-reform taxable income. At this point, the 1971 tax schedule is applied to taxable income and the remainder of the tax calculation is performed.

As the tax system has undergone further changes in each of the years since reform, the data also contains more information than is needed to perform the pure-reform simulation. As above, each affected data item is zeroed out or adjusted in accordance with the original reform legislation.

Appendix D: The Revenue Guarantee: 1972-1975

In recognition of the provincial concerns about the effect of tax reform on revenues, the federal government enacted the Revenue Guarantee as part of the Federal-Provincial Fiscal Arrangements Act of 1972. The purpose of the program was to induce provinces to parallel the federal income tax changes of that year by guaranteeing that if they did so (and set their rates at the specified rates converted from their pre-reform rates), they would receive no less income tax revenues than they would have received had the old system continued. In short, Revenue Guarantee payments were to be equal to the difference between the yields of the old and new tax systems. The concept is shown graphically in Figures 1 and 2. The Guarantee was originally scheduled to run for three years, but the federal government, conceptualizing in terms of Figure 1 and believing that its payout would be small, consented at the last minute to extend it to the end of the 1976 taxation year.

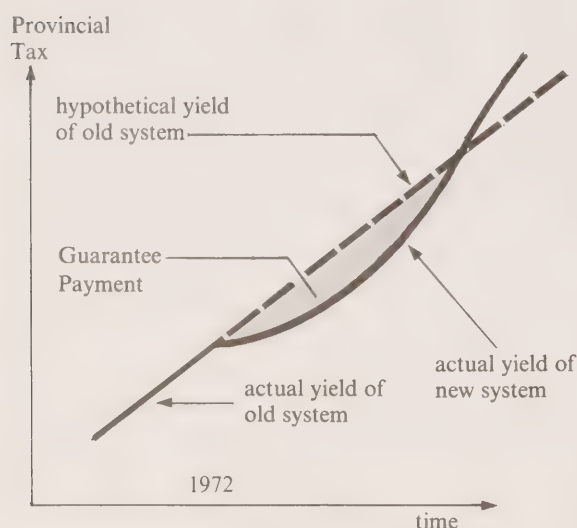


FIGURE 1

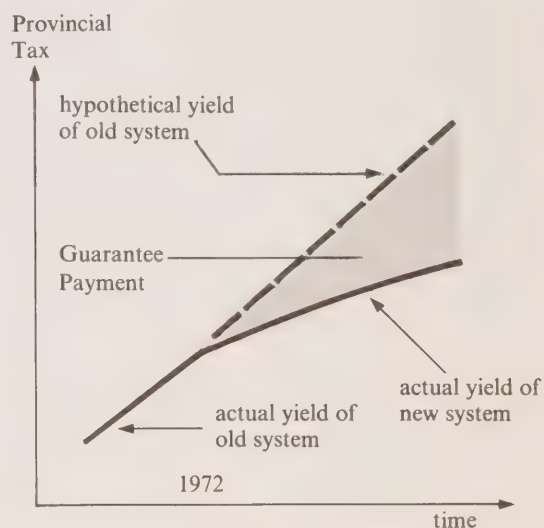


FIGURE 2

The continued viability of the Tax Collection Agreements required that the Guarantee be further extended to protect the provinces from any post-reform changes in federal tax. The federal government duly agreed to this, but with the very notable exception that it did not protect the provinces against revenue losses sustained as a result of indexation. These losses were in fact very large, and it is instructive to note that, other than the costs of doing so, there were no *logical* reasons to exclude indexation from the Guarantee.¹⁹

From a technical point of view, the first problem was to devise a method for estimating the revenues that the old tax system would have generated, had it continued. Two methodologies were developed. The first was called the econometric or “elasticity” approach. Under this approach, the historical relationship between personal income and

¹⁹See Ontario Tax Study 9, *The Dynamic Impact of Indexing the Personal Income Tax*, Ministry of Treasury, Economics, and Intergovernmental Affairs, 1974.

tax yields was established, using the period 1962 to 1971, and the resulting coefficient was then applied to the personal income of the post-reform years to give a hypothetical yield for the old system. This approach will clearly be inaccurate if major structural and behavioural changes occur in the economy, thereby invalidating the use of historical relationships. It will also tend to become more inaccurate the longer the Guarantee period. The alternative methodology was the side-by-side or "micro-simulation" approach. Under this approach, a sample of post-reform tax returns is selected, and reworked using the pre-reform tax definitions. The result is then "blown-up" by proper statistical techniques to get the desired hypothetical yield for the old system. An alleged problem with this method was the inability to "match" the new with the old on a one-to-one basis—it was argued that a sampling technique could not accurately estimate the yield or incidence of the old system because reform had introduced substantially new concepts, and also dropped thousands of individuals from the tax rolls altogether.

A debate over these methodologies raged through 1971 and into 1972. In the end, the federal government chose to use the econometric formula for calculating its Revenue Guarantee payments in respect of the personal income tax. The side-by-side method was adopted to calculate the much smaller guarantee relating to the corporation income tax.

The federal government soon found that its Revenue Guarantee payments were escalating quickly. What had gone wrong was not exactly clear, but everything seemed to suggest that the two tax streams were diverging (as shown in Figure 2) rather than converging (as shown in Figure 1). From the federal point of view, some kind of restraining action was required. Accordingly, the Minister of Finance announced in April of 1976 that the method of calculating Guarantee payments in respect of 1974, 1975 and 1976 personal income tax would be changed; the econometric method originally chosen would now be scrapped in favour of the side-by-side method long preferred on technical grounds by Ontario, Manitoba, and several other provinces.

Ottawa defended its decision by arguing that the econometric formula had become "inaccurate" because of structural and behavioural changes in the economy, some of them, ironically enough, the result of tax reform itself. Unfortunately, it failed to demonstrate to the provinces' satisfaction why these changes warranted such a large reduction in Guarantee entitlements (or even, for that matter, why the econometric formula was in error in the *upward* direction). At the same time, Ottawa argued that the technical problems with the side-by-side formula had suddenly been overcome. It suggested, for example, that the "matching" problem arising from the reduction in the tax rolls had been solved because, under the newly introduced provincial tax credit schemes, even non-payers were required to file tax returns. This amounted to a rather embarrassing turn-around, since Ontario had long before demonstrated the feasibility of the micro-simulation approach.

